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ABSTRACT

This two-volume set, consisting of an instructor's manual and a student learning activity guide, is designed for use in teaching vocational agriculture students basic forestry skills. Provided in the instructor's manual are guidelines concerning the duration of the activity; activity goals; a list of instructional objectives; a list of vocational clusters addressed during the activity; detailed guidelines concerning such areas of activity implementation as safety, materials needed, preparation prior to class, presentation of the lesson, and follow-up activities; an answer key; and an occupational fact sheet. The student learning activity guide includes an introduction, goals, directions, a list of materials needed, a series of instructional objectives and checkpoints dealing with estimating tree heights and diameters and the nature and scope of various forestry-related occupations; and descriptions of five related occupations. (MN)

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AGRICULTURE – FORESTRY, BILTMORE STICK

Kit No. AG – 15

INSTRUCTOR'S MANUAL

AND

STUDENT LEARNING ACTIVITY GUIDE

State Department of Education
Office of Vocational Education
Prevocational Education
Columbia, South Carolina 29201

1980

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1984

TITLE OF ACTIVITY

Kit No. 107, Agriculture — Forestry

DURATION

Main Activity – 4 to 5 class periods
Follow-up Activity – 1 to 4 class periods

GOALS

The purpose of this activity is to introduce the students to some of the activities forestry workers must do. The basic skills explored are estimating diameters at breast height and estimating tree height. Other related occupations are also explored.

Forester Aide: The student will develop a better understanding of the use of some forestry tools and activities performed by forester aides.

Forest Supervisor: The student will develop a better understanding of the activities of a forest supervisor and the use of some forestry tools.

INSTRUCTIONAL OBJECTIVES

Individual Activity Objectives are as follows:

Forester Aides:

Objective I: The student will cut out a Biltmore or cruise stick from the ½" x 6" (1.27 x 15.24 cm) board.
Objective II: The student will label the cruise stick.
Objective III: The student will engrave the marks on the stick.
Objective IV: The student will use the new cruise stick to estimate the diameters of the preselected trees.
Objective V: The student will use the new cruise stick to determine tree height.

Forest Supervisor:

Objective I: Given the teacher's instructions to take charge, the student will check to see that each student has a programmed text.
Objective II: The student will supervise the making of the cruise sticks.
Objective III: The student will supervise the forester aides as they estimate tree diameters.
Objective IV: The student will supervise the forester aides as they learn to pace.
Objective V: The student will supervise and check the forester aides as they estimate tree height.

VOCATIONAL CLUSTERS

Agriculture Education
Trade and Industrial Education
World of Work

ACTIVITY IMPLEMENTATION

A. Activity Description

The class makes Biltmore or cruise sticks to estimate tree diameters and tree heights. A designated forest supervisor controls the entire operation from cutting and labeling the cruise sticks to estimating diameters and heights. The forester aides learn to make the cruise sticks, how to pace, and how to estimate tree diameters and tree heights.

B. Safety

Always notify the instructor immediately when you are injured in the shop, no matter how slight the injury.

Safety goggles of an approved type should be worn at all times in the shop when operating equipment.

Place all combustible materials in the proper containers.

Keep aisles, walkways, and work areas free of excess materials.

Return all tools to proper storage after use.

Operate machines only when authorized.

Avoid needless shouting, whistling, or horseplay in the shop.

Do not disturb anyone who is operating a machine.

Always follow directions.

C. **Materials Required**

1. Audio Visual Equipment
   None

2. Technical Equipment
   2 crosscut handsaws (26", 8-point
   2 electric engravers
   4 combination squares (8")
   6 safety goggles
   4 six-foot (1.83 m) folding rulers
   1 level (Abney)
   2 Biltmore sticks (cruises)
   1 100-ft. (30.48 m) steel tape
   2 tree diameter tapes (6 ft.)

3. Expendable Supplies
   12 pencils
   100 sheets of paper
   Masking tape (½")
   1 box thumb tacks
   8 sheets sandpaper (9" x 11" grit 100)
   ½" x 6" x 10' (1.27 x 15.24 cm x 3.05 m) boards

D. **Preparation Prior to Class**

Obtain all of the necessary materials.

Select the number of Student Learning Activity Guides needed for your class. Class size may vary from just a few members to 30 or more. A forest supervisor should be appointed for each group of ten students.

Forest Supervisor – 1 2 3
Forest Aides – 10 20 30

Set up the following areas:

Construction: space with tables for measuring and electrical outlets for the saw and engraver.

Pacing area: football field, parking lot, hallway. Yards can be marked with tape, chalk, etc.

Forest: select an area near the school with 5 - 20 trees from medium to large size, preferably pines. If no trees are available, use light poles.

E. **During Class Session**

INTRODUCTION – This activity represents some of the activities of the forestry industry. This is a very basic project and the skills introduced are fundamental to forestry. Activities related to other occupational fields are also explored.

The activity is based on the construction of a Biltmore or cruise stick for estimating tree diameters and heights. It will take one or two class periods to make and label the cruise sticks and two to four days to learn to pace and estimate tree diameters and heights.

The teacher will provide the materials, equipment, establish the work areas, appoint the forest supervisor(s), and serve as an advisor for the activity. The forest supervisor will be in charge of all individual activities, reporting to the teacher regarding the progress of the activity and for assistance with major problems.

The following materials are needed to perform this activity:

Student Learning Activity Guides
Technical equipment and expendable supplies as listed

The Biltmore sticks can be taken home by the students after the activity has been completed. Some students may wish to measure timber at home.

2. Appoint the forest supervisor(s).
3. Have the other students select a programmed text.
4. Explain the flow chart and how the activity will progress.
5. Carefully explain that the forest supervisor will have control of the activity and that the teacher's role will be that of an advisor.
6. Oversee the activity and give advice and assistance only when necessary.

F. **Follow-up Activities**

1. Select at least one of the follow-up activities. it is recommended that the first follow-up activity be used if the others are not. These activities should be assigned for the next class meeting following completion of the activity.
2. The follow-up activities are as follows:
   A. Individual Activity

   Using the "VIEW" series, the student will answer a series of questions on a fact sheet of an occupation related to the forestry industry. It is recommended that the student keep a notebook with sections 1 through 5. The student then can place the "VIEW" fact sheet in the appropriate section according to how they rated their

interest in the occupation selected.

B. Group Activity

Arrange for a class trip to a local sawmill or forest industry.

C. Group Activity

Arrange for a local forester or forest ranger to visit the class to explain the activities engaged in and opportunities in the field.

D. Group Activity

The students may want to contact a sawmill to determine the price of timber. Then they could figure the selling price of the timber measured.

E. Group Activity

Some of the students may wish to set out tree seedlings as another project. The seedlings could be obtained through the local forest ranger.

MASTERS FOR DUPLICATION

Occupational Fact Sheet

OCCUPATIONAL FACT SHEET

NAME _____ CLASS _____ OCCUPATION _____

A. List the advantages (good points) of this occupation (job).

B. List the disadvantages (bad points) of this occupation (job).

C. List three things you should know to do this occupation (job).
1.
2.
3.

D. What type of education should you get to be prepared (do) for this occupation (job)?

E. What courses must you take to go into this occupation (job)?

F. What do you think your future in this occupation (job) will be?

G. What wage can you expect in this occupation (job)?

H. What are the working hours of this occupation (job)?

I. To learn more about this occupation (job), write to:

J. Using a scale of 1 to 5, circle the number that measures your interest in this occupation (job) as a possible career.

I don't like it. 1 2 3 4 5 I like it.

AGRICULTURE — FORESTRY, BILTMORE STICK

Kit No. AG — 107

STUDENT
LEARNING ACTIVITY GUIDE

State Department of Education
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ANDERSON 2ND HIGH TECH CENTER

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AGRICULTURAL PRODUCTION I

INTRODUCTION

This activity represents some of the activities of a vegetable farmer or a truck farmer. This is a basic project, involving the growing of early spring vegetable plants to be sold or transplanted into the field or home garden. All of the activities explained in this project illustrate some of the various responsibilities of a truck farmer.

The activity is based on the preparation of proper seed beds, the planting and care of tomato plants, and the sale of the plants. With the proper planting directions or a planting guide, other seeds could be used instead of the tomato, such as peppers, squash, cucumbers, eggplant, watermelon, and cantaloupe.

The activity takes three to five days (50 minute periods) to get the seed beds constructed, soil mixed, and the seed planted. The seed bed and plants will need occasional care for the next five to eight weeks. Just as farmers must wait until harvest to sell their products to have money to pay their creditors, the students in this enterprise must wait to be paid for their labors.

The activity works best if begun around Valentine's Day or shortly thereafter (mid-February). The teacher will provide the materials, set up the working areas, and serve as an advisor for the project. The farmer will be in charge of the project, coordinating all of the various activities. The other students must follow the directions of the farmer.

Obtain the technical supplies and equipment. The teacher is responsible for gathering the consumable materials used in this activity.

The activity is completed when the plants reach the final transplanting stage. The students can take the plants home for their gardens as "pay" for their work or the plants may be "sold" by the class to cover the expenses involved in the project.

The class may want to grow more than one kind of vegetable or to prepare an area near the school to transplant some of the plants. These could be cared for until maturity and then harvested.

Standard safety practices should be followed during this activity. The following is a short list of safety practices.

1. Always notify the instructor immediately when you are injured, no matter how slight the injury.
2. Safety goggles of an approved type should be worn when sawing, hammering, etc.
3. Keep aisles and walkways clear of excess materials, scrap, or waste.
4. Sharp edged tools should be carried with sharp points and edges downward.
5. Return all tools to proper storage after use.
6. Avoid needless shouting, whistling, or horseplay in class or shop.
7. Keep nails, tacks, tomato leaves out of your mouth. Tomato leaves are poisonous if eaten.
8. Be careful of splinters when using wood with rough edges.
9. Follow all directions.

DIRECTIONS

After the teacher has introduced the activity to the class, each student will select a programmed text. The texts will have step-by-step directions for each student to follow. When a text has been selected, read it very carefully. If you have any questions, ask the teacher for help. After all explanations have been made, the farmer will take charge of the activity. Each student will report to the work area indicated on the programmed text. Begin work when the farmer gives the go-ahead.

PROGRAMMED TEXT

Truck Farmer
Sales Representative
County Farm Agent
Farm Hand I
Farm Hand II
Hotbed Worker
Farm Hand – Inventory Clerk
Farm Hand – Sales

COUNTY FARM AGENT

INTRODUCTION

The County Farm Agent is responsible for recommending plant varieties and planting dates, assisting in soil analysis, and helping the farmer with problems that arise with the acitivity. The agent has very little authority, but gives advice based on research data.

GOAL

Upon completion of this activity, the student will have a better understanding of some of the activities of a county farm agent.

DIRECTIONS

The student must follow the directions carefully, completing each step before going on to the next step. If any problem arises, ask the teacher for help.

MATERIALS

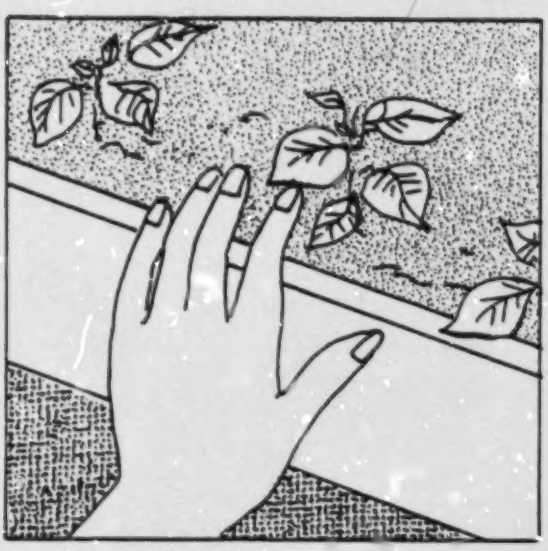
Pencil, paper, planting guides.

Instructional Objective 1

The student will advise the farmer and farm workers when they have problems.

STEP 1 – If a vegetable is planted other than tomatoes, help the farmer find the proper planting directions in the planting guide.

STEP 2 - Visit the farm workers while they work. If any problem arises, help solve it using the planting guides.



STEP 3 – After the seedlings are transplanted, check the plants weekly for any sign of wilt or disease.

Check Point

Check with the farmer to see that all problems have been solved.

If all problems have been worked out, assist the farmer in supervising the activities.

If a problem exists, go back and follow directions.

SALES REPRESENTATIVE
FARM EQUIPMENT AND SUPPLIES

INTRODUCTION

The farm equipment and supplies sales representative sells the farmer the necessary equipment and materials needed in this activity. The representative delivers the materials and makes a bill for the farmer to pay when the plants are sold.

GOAL

Upon completion of this activity, the student will have a better understanding of the duties performed by farm equipment and supplies sales representatives.

DIRECTIONS

The student must follow the directions carefully, completing each step before continuing to the next step. If any problem arises, ask the farmer for help.

MATERIALS

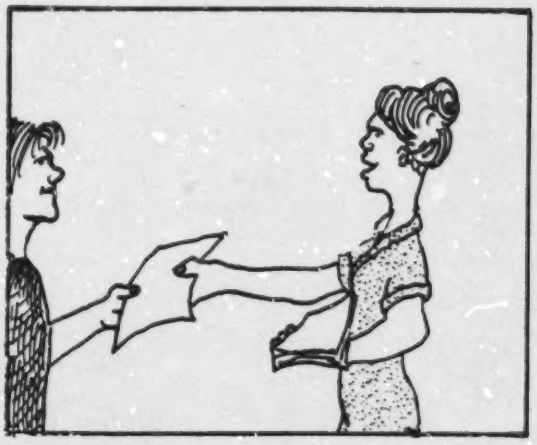
Pencil, paper, 1" x 6" boards, ¼" plywood, seeds, potting soil, nails, tacks, plastic, sand.

Instructional Objective 1

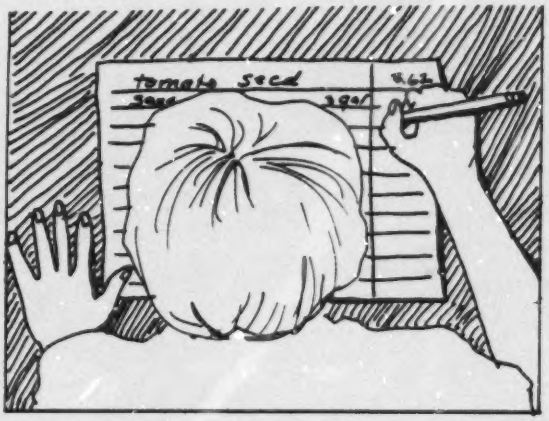
The student will prepare a bill for the materials ordered by the farmer.

STEP 1 – On a sheet of paper, neatly list the following supplies:

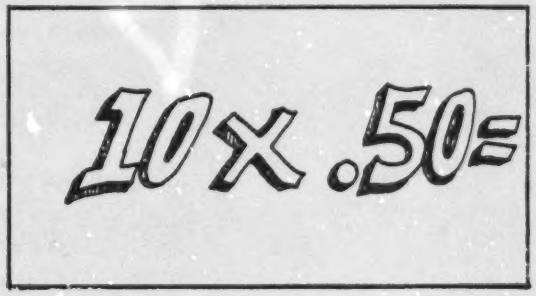
a. tomato seeds
b. potting soil
c. ¼" (0.635 cm) plywood
d. 1" x 6" (2.54 cm x 15.24 cm) boards
e. plastic
f. nails
g. tacks
h. sand



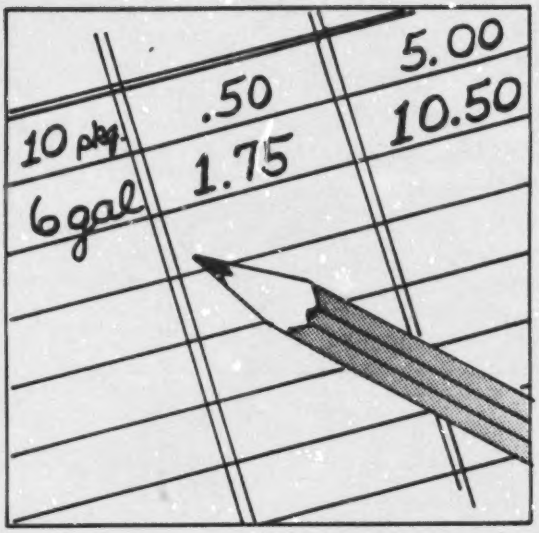
STEP 2 – From the teacher, obtain a unit price for each item.



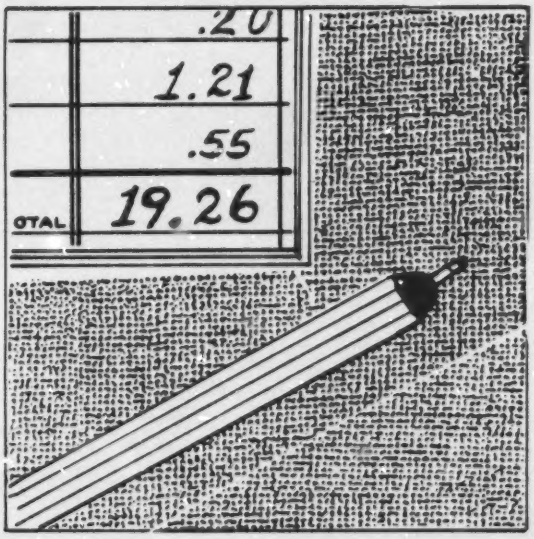
STEP 3 – List the price beside the items.



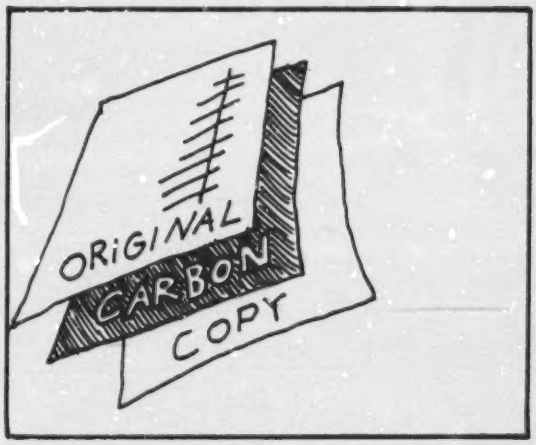
STEP 4 – Multiply the number of each item ordered times the unit price for a total price.



STEP 5 – List the total price beside the unit price.



STEP 6 – Add the total price column. The answer is the amount the farmer owes.



STEP 7 – Make a copy of the bill.

Check Point

Before continuing to the next step, check to see that all items and prices are listed and items totaled.

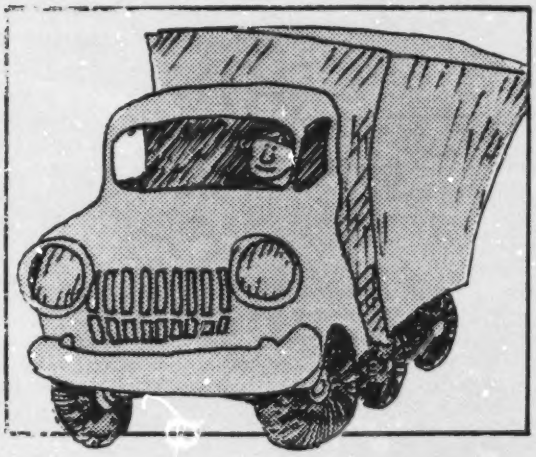
If all items and prices are listed and items totaled, continue to the next phase.

If all items and prices are not listed and totaled, go back and follow the directions carefully.

Instructional Objective II

The student will deliver the ordered materials to the work areas.

STEP 1 – Gather all items ordered by the farmer.



STEP 2 – Deliver the items to the work areas.

STEP 3 – Give the farmer the copy of the prepared bill.

STEP 4 – The farmer will pay the bill when the plants are ready for sale, either with money or plants equaling the value of the bill.

Check Point

Check with the farmer to see that all items were delivered.

If an item was missing, determine the error and follow the directions.

TRUCK FARMER

PROGRAMMED TEXT

INTRODUCTION

The farmer is responsible for the complete activity–ordering supplies, directing and supervising the other workers in the preparation of seed beds and the planting of seeds and transplanting the seedlings. The farmer is also responsible for overseeing the sale of the plants.

GOAL

Upon completion of this activity, the student will have some insight into the type of activities performed by a truck farmer.

DIRECTIONS

The student must follow directions carefully, completing each step before continuing to the next step. Some personal judgment may be necessary. If any problems arise that pose a serious difficulty, ask the teacher for help.

MATERIALS

Pencil, paper.

Instructional Objective 1

The student will order the necessary supplies for the activity from the Farm Equipment & Supplies Sales Representative.

STEP 1 – List the materials needed on a sheet of paper. The following table is based on one seed bed.

- 1 – 1" x 6" x 8' (2.54 cm x 15.24 cm x 2.4384 m) pine board
- 1 – ¼" x 24" x 36" (0.635 cm x 60.96 cm x 91.44 cm) A & D Plywood
- 1 – 100 seed pack Tomato seeds
- 12 – 8 penny coated nails
- 30 – ½" (1.27 cm) tacks or nails
- 3 gallons (11.3562 l) masonry or medium sand
- 6 gallons (22.7124 l) potting soil

STEP 2 – Give this list to the Sales Representative from the Farm Supply Co.

STEP 3 – Order materials for the number of seed beds to be prepared.

Check Point

Check over the sales representative's order to see that all items are listed.

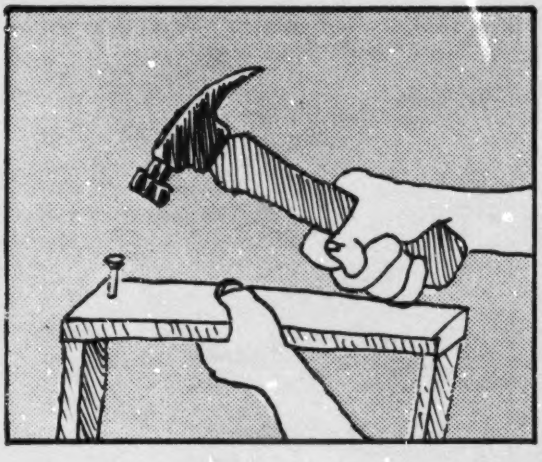
If all items have been ordered, continue to the next step.

If something is missing, go back and include all items.

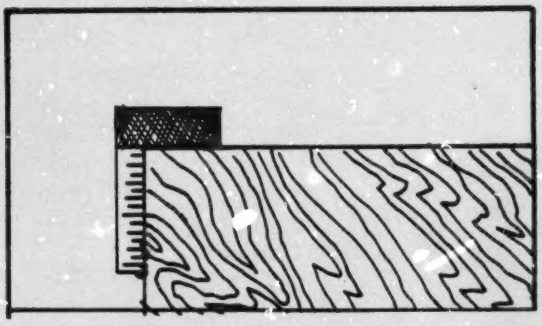
Instructional Objective II

The student will supervise the farm hand I in the construction of the seed bed box and transplant cups.

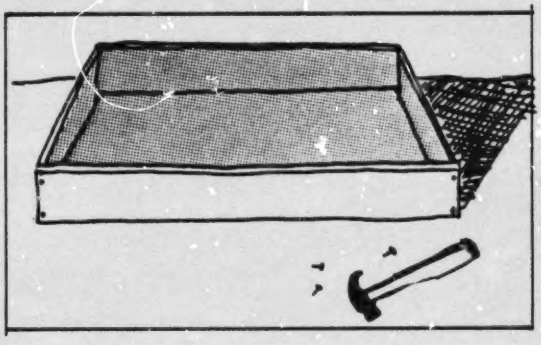
STEP 1 -- Check to see that the student measures and cuts the boards according to directions for the box frame.



STEP 2 – Check to see that the student nails the frame of the box together according to directions.

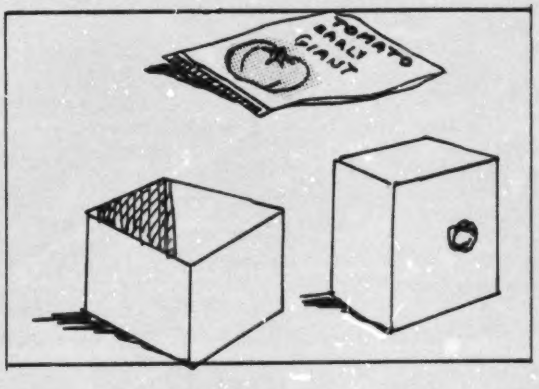


STEP 3 – Check the student to see that the plywood bottom is cut properly.



STEP 4 – Check the box to see that the bottom is nailed and glued properly.

STEP 5 – Inspect the box after it is lined with plastic.



STEP 6 – Inspect the transplant cups to see that they were prepared properly.

Check Point

Check the completed, lined seed bed box and transplant cups to see that they are o.k.

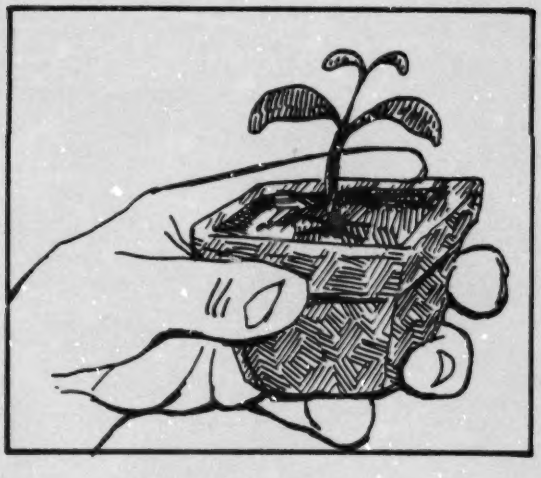
If the box and cups are approved, move on to the next phase.

If the box or cups are not approved, have the students determine error, begin again following directions.

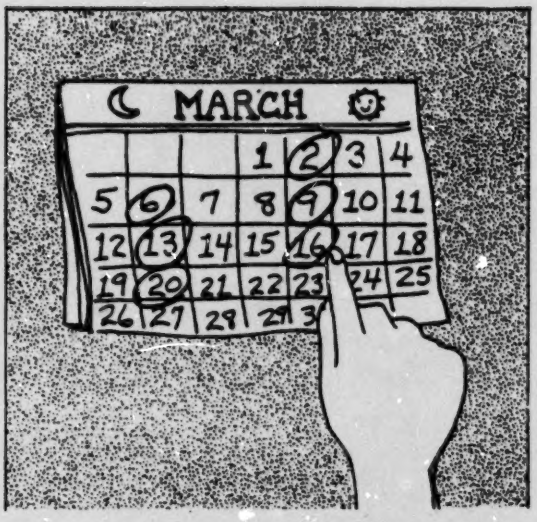
Instructional Objective III

The student will supervise the farm hand II in the mixing of the soil and the transplanting and care of the seedlings.

STEP 1 – Check behind the student to see that the soil is mixed on a 3 to 1 ratio.



STEP 2 – Supervise the student as the seedlings are transplanted to see that the seedlings are handled properly.



STEP 3 – Inspect the seedlings twice weekly to see that the student cares for them properly.

Check Point

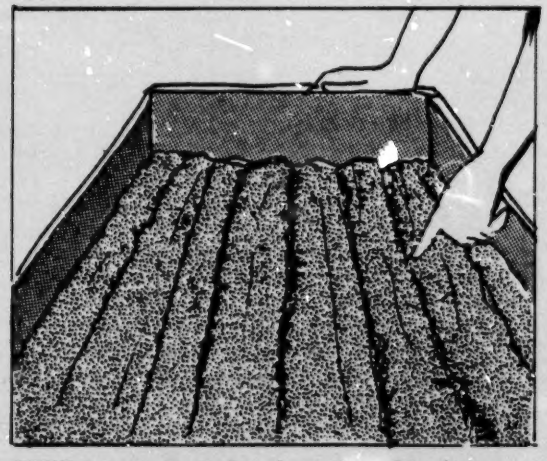
Before continuing, check to see that the farm hand II has carried out the activity properly.

If everything is approved, continue to the next step.

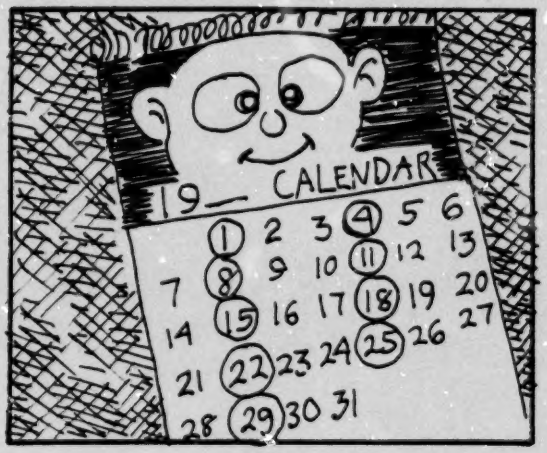
If the student is not performing the activity properly, have the student to review the directions and follow them.

Instructional Objective IV

The student will supervise the hot bed worker.



STEP 1 – Inspect the planted seed beds to see that the student planted the seed properly.



STEP 2 – Inspect the seed bed twice a week to see that the student is providing proper care.

Check Point

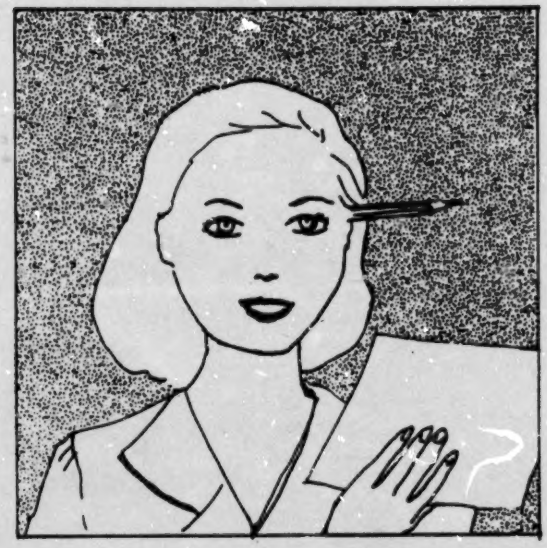
Before continuing, check with the hot bed worker to see that all directions have been followed.

If everything has been done, continue to the next step.

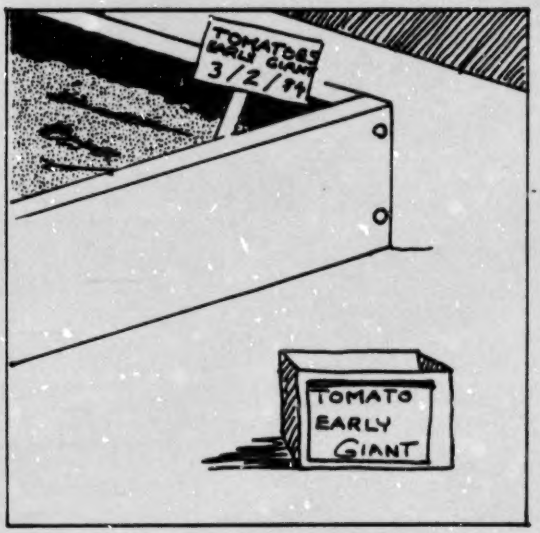
If the hot bed worker is not performing the activity properly, instruct the student to read and follow directions.

Instructional Objective V

The student will check to see that the Farm Hand – Inventory Clerk performs the assigned activities properly.



STEP 1 – Check the information sheets completed by the inventory clerk.



STEP 2 – Check to see that the seed beds and transplant cups are labeled properly.

STEP 3 – Check to see that the cost per plant was computed properly.

Check Point

Before continuing, check to see that all activities have been performed.

If everything has been done, continue to the next step.

If there is an error, have the student go back and follow directions.

Instructional Objective VI

The student will work with the County Farm Agent in determining planting procedures and solving problems.

STEP 1 – The student will ask the Farm Agent for assistance if different seeds are planted.

STEP 2 – The student will ask the Farm Agent for assistance if some problem arises in the activity.

STEP 3 – The student and County Farm Agent will supervise the activities together as time permits.

Check Point

Before continuing, check with the Farm Agent to see that all problems have been solved.

If all problems are solved, continue to next step.

If some problem exists, follow directions or seek help from the teacher.

Instructional Objective VII

The student will assist the Farm Hand-Sales in selling the seedlings.

STEP 1 – When the student sets the price for selling the seedlings, check to see that the price is "reasonable" (25 cents to 30 cents).

STEP 2 – The student will help sell the seedlings.

STEP 3 – The student will "pay" the workers with a seedling.

STEP 4 – The student will collect the money for seedlings sold.

STEP 5 – The student will give the money to the teacher.

Check Point

Check to see that all plants have been sold and the money collected and turned in to the teacher.

If some plants remain to be sold or money turned in, follow the directions.

22

FARM HAND
INVENTORY CLERK

INTRODUCTION

The inventory clerk in this case is a farm worker who is responsible for keeping accurate records on the plants being grown: planting dates, expenses involved, sprouting date, plant variety used, transplanting dates, and selling prices. Labeling the seed beds and keeping the records accurately is very important if the activity is to succeed.

GOAL

Upon completion of this activity, the student will be aware of some of the record keeping and inventory activities necessary in the operation of a truck farm.

DIRECTIONS

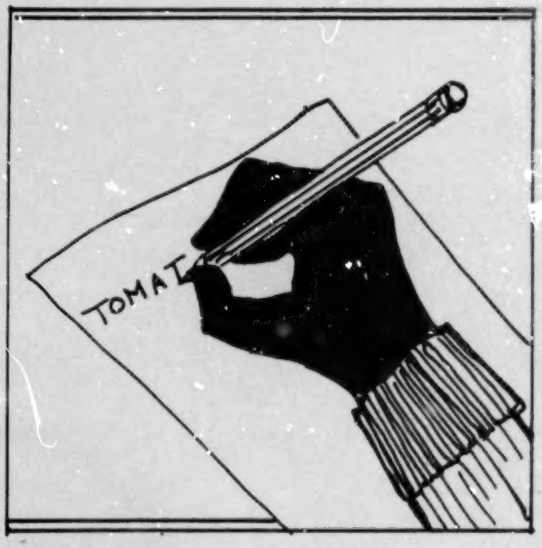
The student must follow the directions carefully, completing each step before continuing to the next step. If any problems arise, ask the farmer for help.

MATERIALS

Pencil, paper, tape, index cards.

Instructional Objective

The student will record and list all important information on all seeds planted.

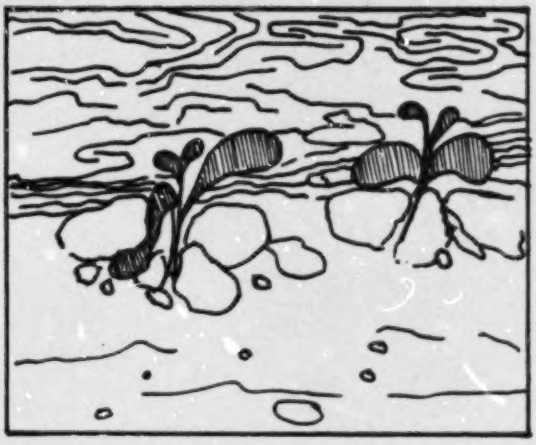


STEP 1 – List each type of seed sown on a separate page.

STEP 2 – Record the planting date.

STEP 3 – Record the following information, obtained from the farmer, for each seed bed expense:

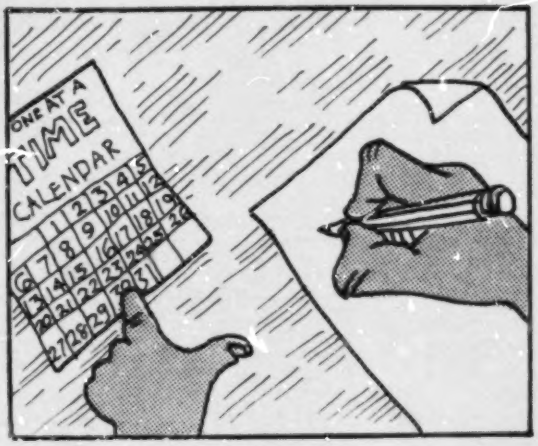
a. Cost of seed
b. Cost of potting soil
c. Cost of sand
d. Cost of lumber for seed bed
e. . . .
f. . . .



STEP 4 – Record the sprouting date (date plants come up).

STEP 5 – Record the transplanting date.

STEP 6 – Record the total number of plants transplanted.



STEP 7 – Record the selling date and price.

Check Point

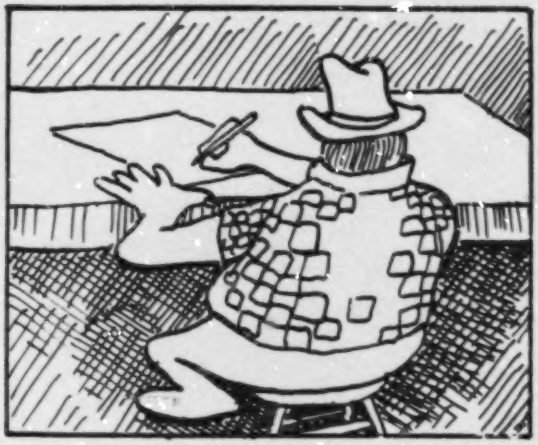
Before continuing to the next step, check to see that all of the available information is recorded.

If all of the necessary and available information is listed, continue to the next step.

If some of the information has been omitted, follow the directions and record the available information.

Instructional Objective II

The student will label each seed bed as to variety and each transplant cup as the seedlings are transplanted.



STEP 1 – Write the name of each variety of plant on an index card.

STEP 2 – As the seeds are planted, tape the proper name to the side of the box indicating the seed type used.

STEP 3 – When the seedlings are transplanted, write the correct name of the seedling variety on each transplant cup.

Check Point

Before continuing, check to see that all seed beds and seedlings are properly labeled.

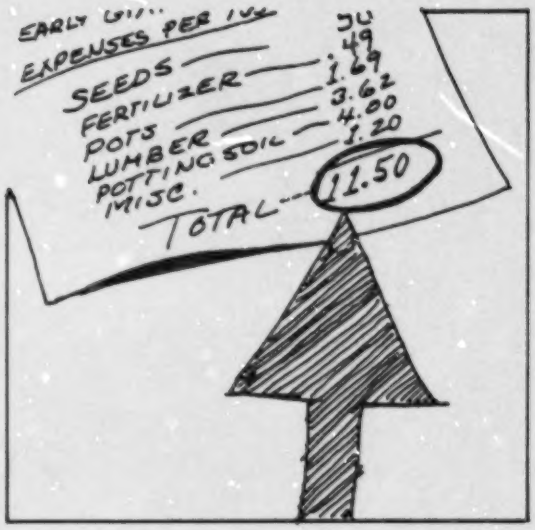
If all are correctly labeled, continue to the next phase.

If there are seed beds or seedlings unlabeled, go back and label following directions.

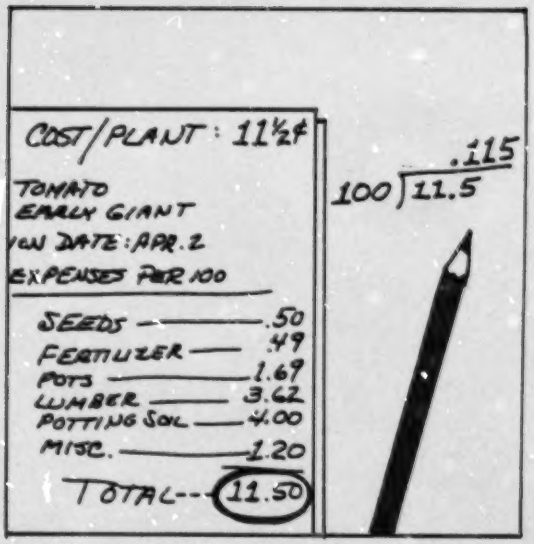
Instructional Objective III

The student will total expenses and determine cost per plant for each variety.

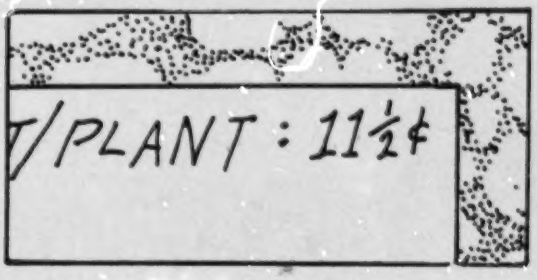
STEP 1 – When all expenses are recorded, add them up.



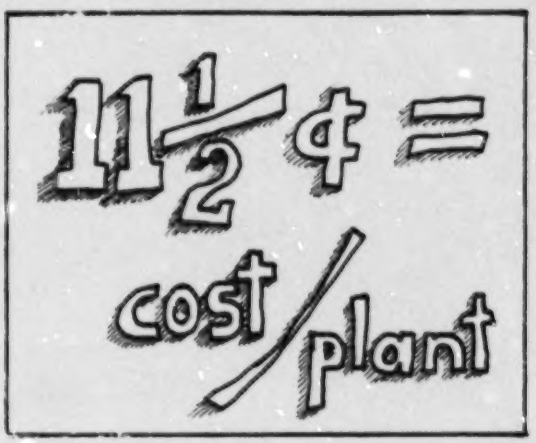
STEP 2 – Circle the total on the page.



STEP 3 – Divide the number of plants of the variety into the total expenses.



STEP 4 – Write the answer at the top of the page.



STEP 5 – Label this answer: cost/plant.

STEP 6 – Give this answer to the farmer.

Check Point

Have the farmer check the figures for accuracy.

If the work is not approved, go back and rework this objective following the step by step directions.

FARM HAND I

INTRODUCTION

The farm hands I are responsible for the construction of the seed beds and for preparing the transplanting cups. The farm hand I is a wage earner, usually hired for extended periods of time.

GOAL

Upon completion of this activity, the student will have a better understanding of some of the activities that are performed by a farm hand I.

DIRECTIONS

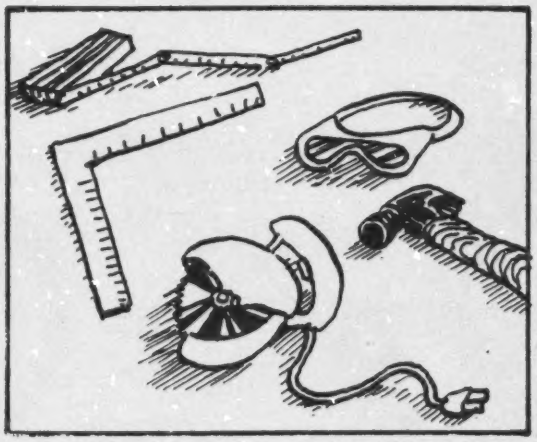
The student must follow the directions carefully, completing each step before continuing to the next step. If any problem arises, the student will ask the farmer for help.

MATERIALS

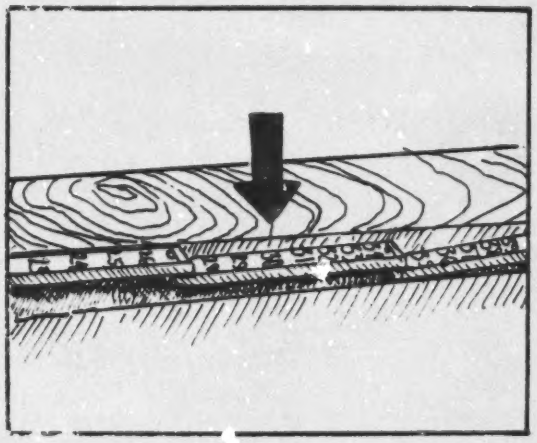
Pencil, combination square, hammer, two foot square, folding rule, white glue, plastic, scissors, tacks, nails, boards, plywood (¼" – 0.635 cm), circular saw, empty milk cartons, safety goggles.

Instructional Objective I

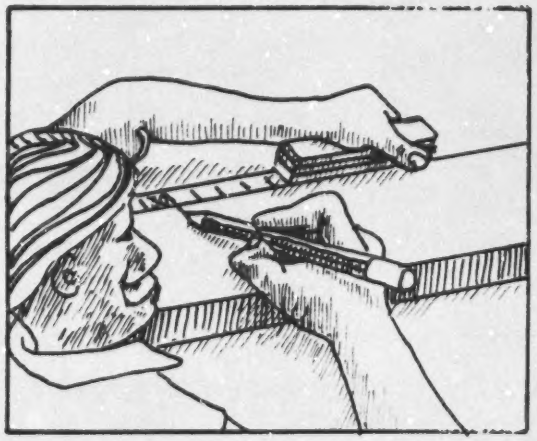
The student will measure and cut boards for the seed beds 18" x 30" x 6"(45.72 cm x 76.2 cm x 15.24 cm).



STEP 1 – Secure the materials.



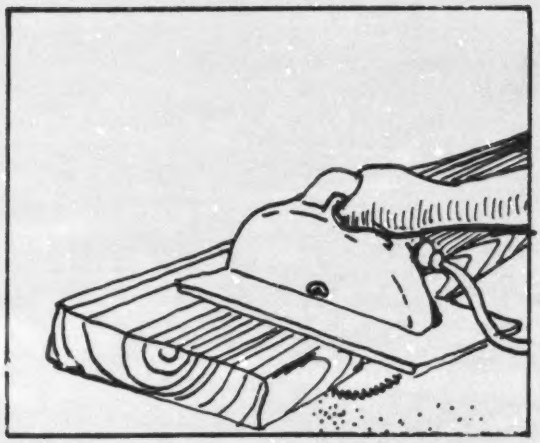
STEP 2 – Using the folding rule, measure 30"(76.2 cm) on one of the 1" x 6" boards.



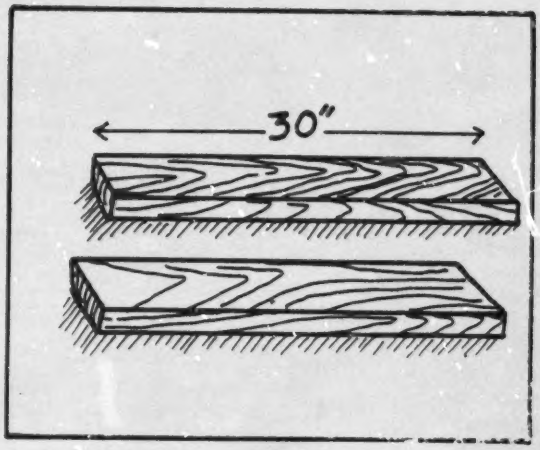
STEP 3 – Using a pencil, mark this distance.

STEP 4 – Using a combination square, draw a line across this mark to square the saw line.

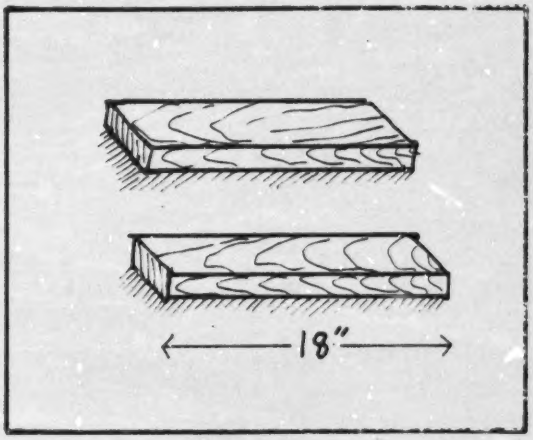
STEP 5 – Put on safety goggles.



STEP 6 – Using the saw, cut the board following the line.



STEP 7 – Cut another board 30" (76.2 cm) following the above directions.



STEP 8 – Using the above procedures, cut two boards 18"(45.72 cm).

Check Point

Before beginning the next phase, check to see that the boards are cut the right lengths.

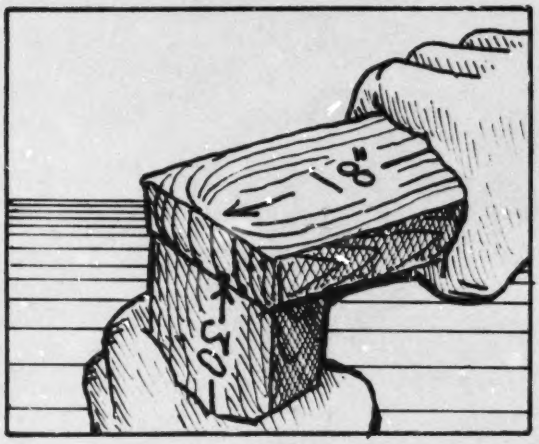
If the boards are 18" and 30" continue to the next phase.

If the boards were not cut right, determine the error, consult with the farmer and following directions, correct the mistake.

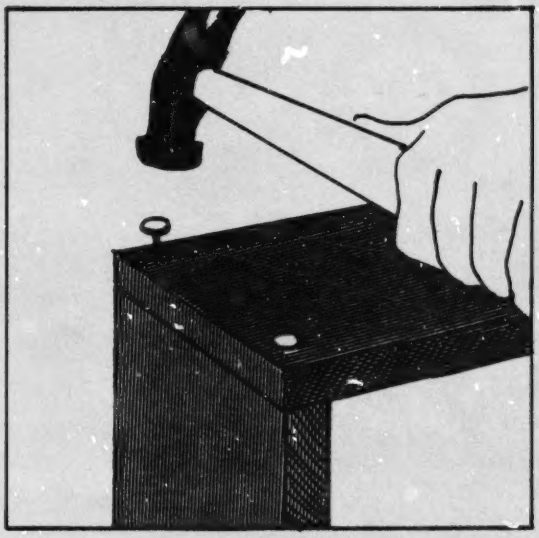
Instructional Objective II

The student will nail the boards together to form the box frame.

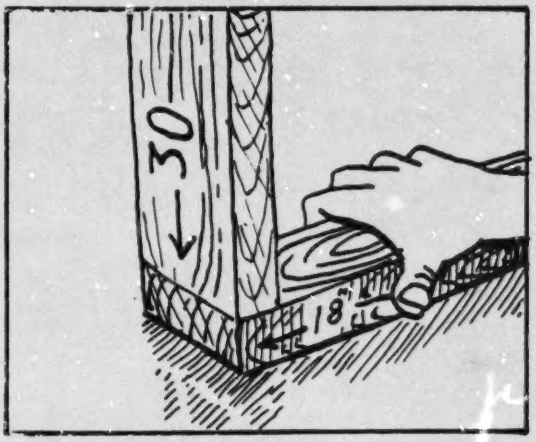
STEP 1 – Take one of the 30" (76.2 cm) boards and stand it on its end.



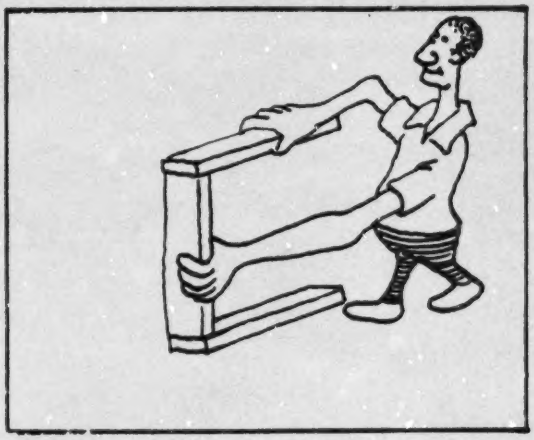
STEP 2 – Place one of the 18" (45.72 cm) boards on this 30" (76.2 cm) board, with the end of the 18" (45.72 cm) board flush or even with the outside of the 30" (76.2 cm) board.



STEP 3 – Holding the boards in place, nail

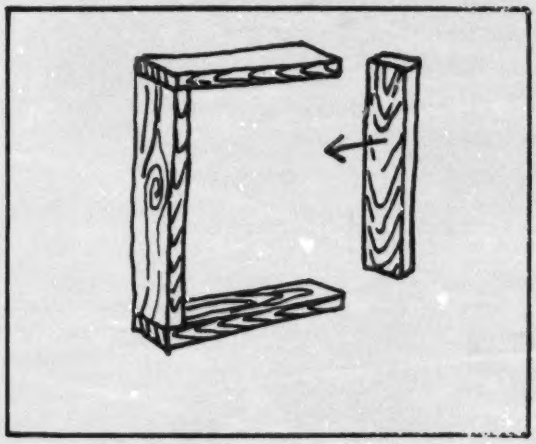


STEP 4 – Turn the 30" (76.2 cm) board upside down so that the 18" (45.72 cm) board is on the floor.

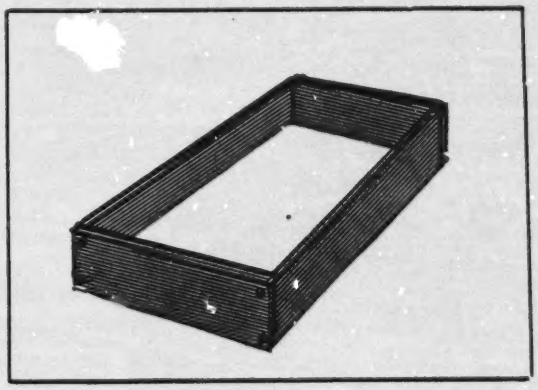


STEP 5 – Place the other 18" (45.72 cm) board across the end of the 30" (76.2 cm) board as shown.

STEP 6 – Nail these boards together.



STEP 7 – Insert the other board between the two 18" (45.72 cm) ends, to form the shape of a box.



STEP 8 – Nail both ends, making sure the box is held square.

Check Point

Before beginning the next phase, check with farmer to see that the box is nailed properly.

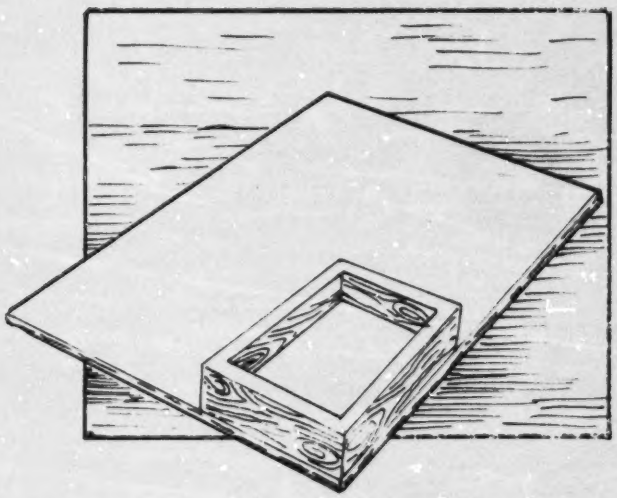
If the box is approved, continue to the next phase.

If the box is not approved, determine the error, and correct the mistake.

Instructional Objective III

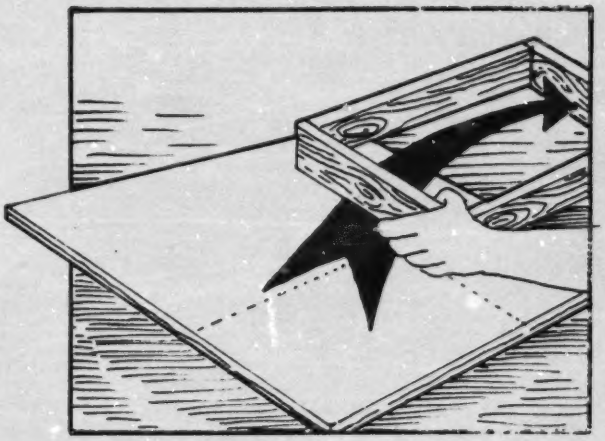
The student will measure and cut the bottom for the box.

STEP 1 – Place the box frame onto the sheet of plywood.

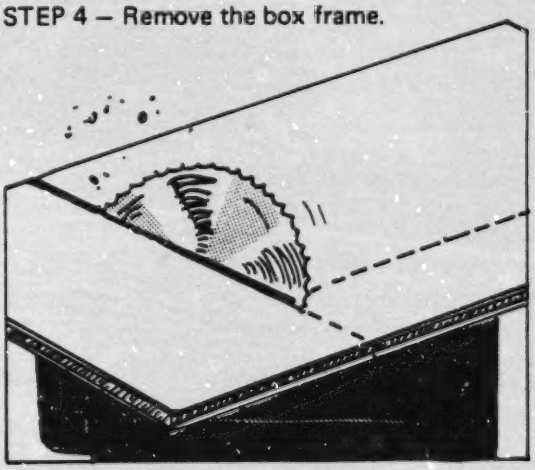


STEP 2 – Line one of the 30" (76.2 cm) sides up with the edge of the plywood and the 18" (45.72 cm) side with another edge.

STEP 3 – Draw a line around the outside of the box frame, being sure to hold the box frame in place.



STEP 4 – Remove the box frame.



STEP 5 – Cut the plywood bottom out, following the lines.

Check Point

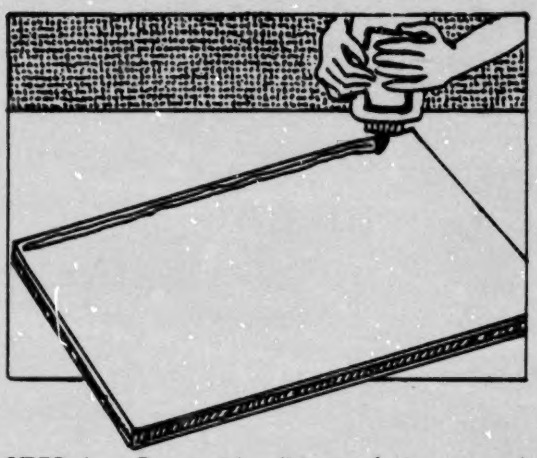
Before continuing to the next phase, check to see that the plywood bottom fits the box frame.

If the bottom fits, continue to the next phase.

If the bottom does not fit, determine the error, and correct the mistake.

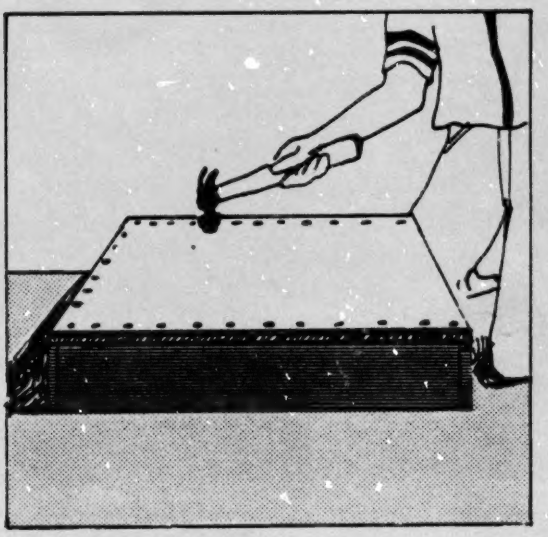
Instructional Objective IV

The student will glue and nail the bottom onto the box frame.



STEP 1 – Put a thin ribbon of glue around the bottom edge of the box frame.

STEP 2 – Place the plywood bottom onto the frame.



STEP 3 – Holding the plywood in place and making sure the box is square, nail the plywood onto the box frame.

Check Point

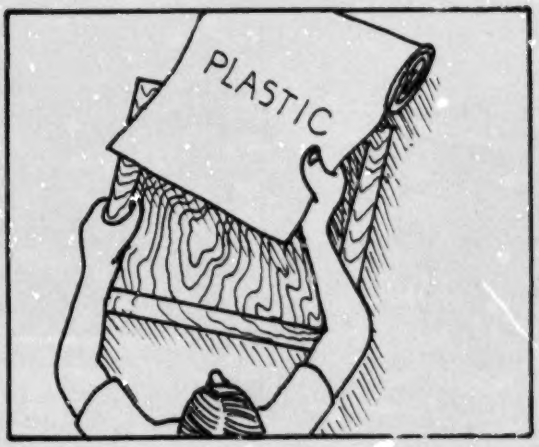
Before continuing to the next phase, check with the farmer to see if the box is approved.

If the box is approved, continue to the next phase.

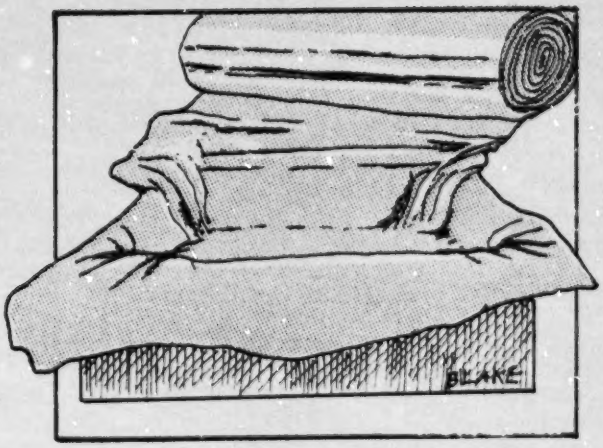
If the box is not approved, determine the error, and with the farmer's help, try to correct the mistake.

Instructional Objective V

The student will line the box with plastic.

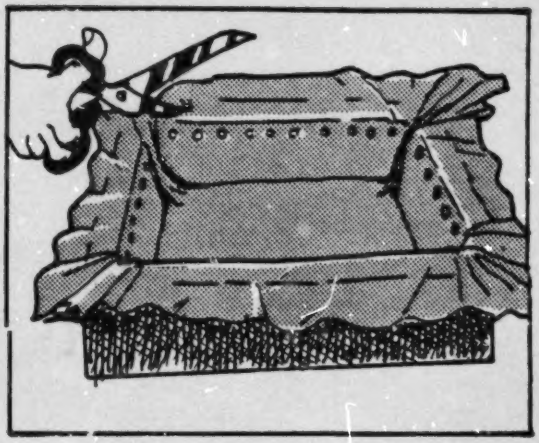


STEP 1 – Unroll some plastic over the completed box.



STEP 2 – Fit the plastic into the bottom of the box.

STEP 3 – To keep the plastic in place, place a weight in each corner.



STEP 5 – Using the scissors, cut the plastic along the edge of the box.

STEP 6 – Be careful in handling the plastic so as not to put a hole in it. This is your water barrier.

STEP 4 – Fasten the plastic with tacks along the top edge of the box.

Check Point

Before continuing, check with the farmer for approval.

If the completed seed bed box is approved, continue to the next phase.

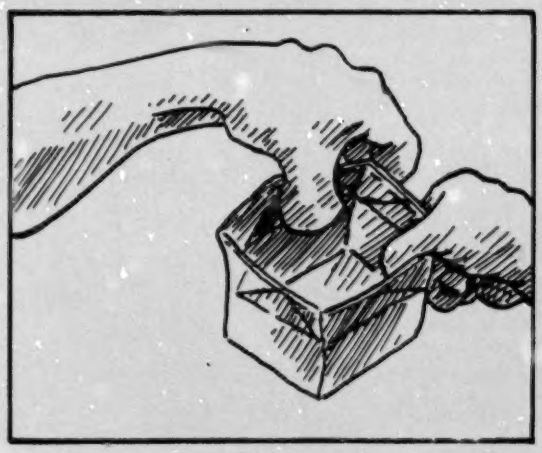
If the seed box is not approved, determine the error, follow the directions and properly place the plastic.

Instructional Objective VI

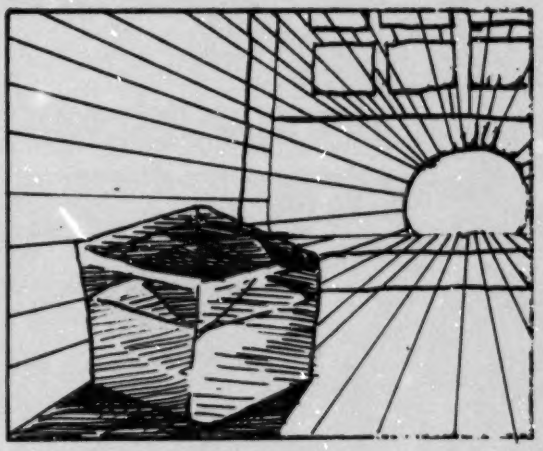
The student will collect and prepare transplant cups.

STEP 1 – Collect empty milk cartons (½ pt. – 0.235 l) from cafeteria.

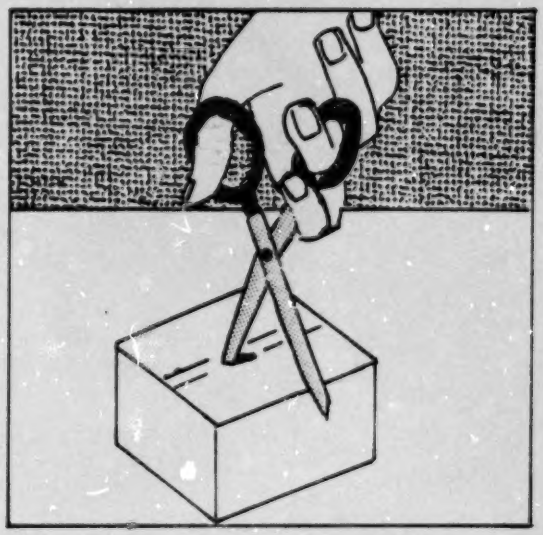
STEP 2 – Wash these out with water.



STEP 3 – Finish opening the top of the carton.



STEP 4 – Allow to dry.



STEP 5 – Punch small hole in bottom with scissor's point.

STEP 6 – Make sure that there is one carton for every plant.

Check Point

Count the plants and cups.

If there are not enough, cups, follow directions, collect and prepare more.

FARM HAND II

INTRODUCTION

The farm hand II is also a wage earner and is responsible for mixing the potting soil and transplanting the plants. This worker is usually employed on a day-to-day or specific job basis and usually works under the supervision of the farmer.

GOALS

Upon completion of this activity, the student will be aware of some of the activities of a day-to-day farm hand II.

DIRECTIONS

The student must follow the directions carefully, completing each step before continuing to the next step. If any problem arises, ask the farmer for help.

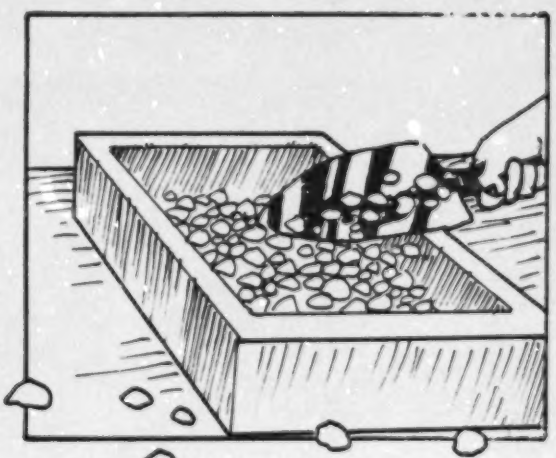
MATERIALS

Hand shovel, masonry sand, potting soil, ½" (1.27 cm) stone gravel, a 2–3 (7.57 l–11.356.2 l) gallon bucket or clean trash can, empty can (1 gallon – 3.78 l) for measuring, newspapers, transplant cups, plastic.

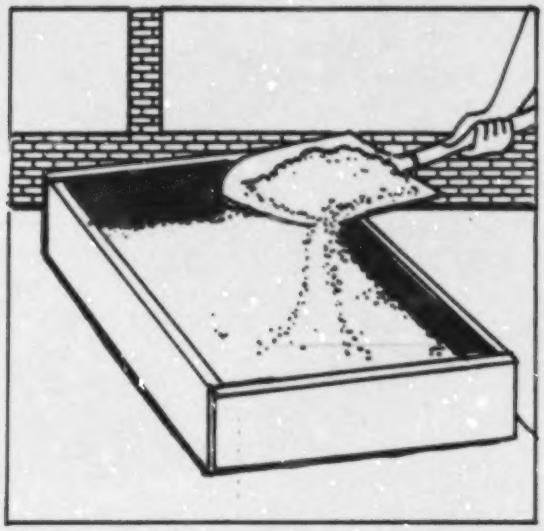
Instructional Objective I

The student will mix the soil for the planting bed.

STEP 1 – Secure the necessary materials.



STEP 2 – Take the completed seed bed box and put a 1½"(3.81 cm) layer of gravel in the bottom of the lined box.

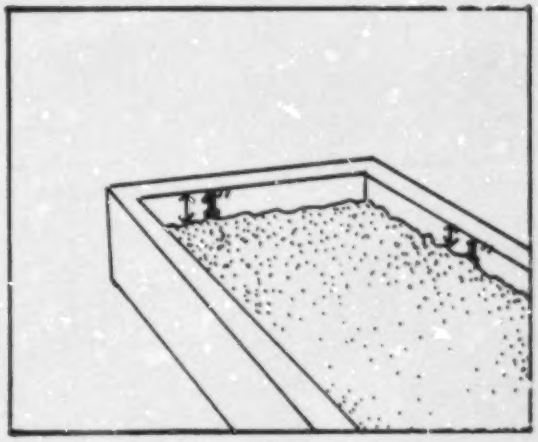


STEP 3 – Put a ½" (1.27 cm) layer of masonry sand on top of the gravel.

STEP 4 – Using the empty can, put 3 cans potting soil and 1 can masonry sand into the bucket or clean trash can.

STEP 5 – Mix together thoroughly.

STEP 6 – Pour into box on top of sand layer.



STEP 7 – Fill the box to within 1"(2.54 cm) of the top with this 3 parts potting soil to 1 part sand mixture.

Check Point

Before turning the seed bed over to the hotbed worker, check with the farmer to see if the soil mixture is acceptable.

If the soil mixture is approved, give the seed bed to the hotbed worker.

If the soil mixture is not approved, carefully remove some of the soil and add sand or potting soil to correct error.

Instructional Objective II

The student will transplant the plants when the farmer instructs (usually 14-18 days after planting).

STEP 1 – Mix 3 parts potting soil to 1 part sand.

STEP 2 – Fill transplant cups (empty milk cartons) half full of the soil mixture.

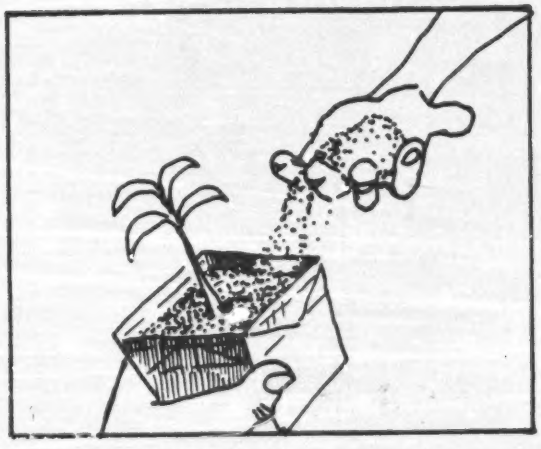
STEP 3 – Wet soil with fine spray of water.

STEP 4 – Mixture must be wet before transplanting.

STEP 5 – Form a hole in the center of soil in each cup.

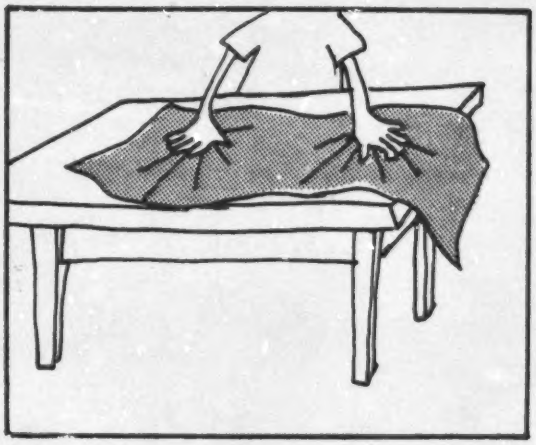
STEP 6 – Using the hand shovel, carefully lift out the seedlings with 4 leaves. Do not pull them up; hold by the leaves.

STEP 7 – Place one seedling in each cup where the hole has been formed.

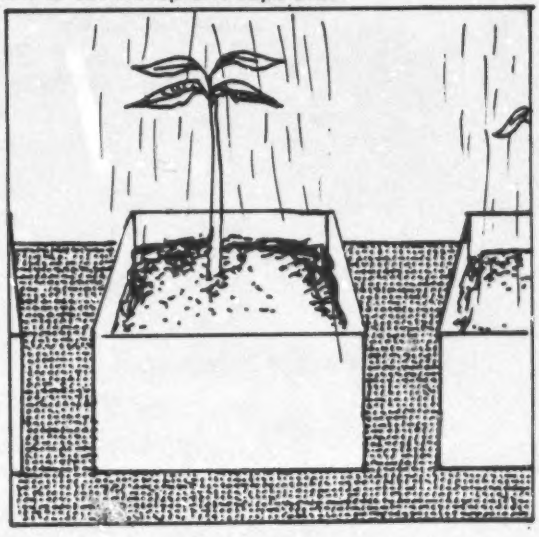


STEP 8 – Add a small amount of soil and firm the soil mixture around the seedlings.

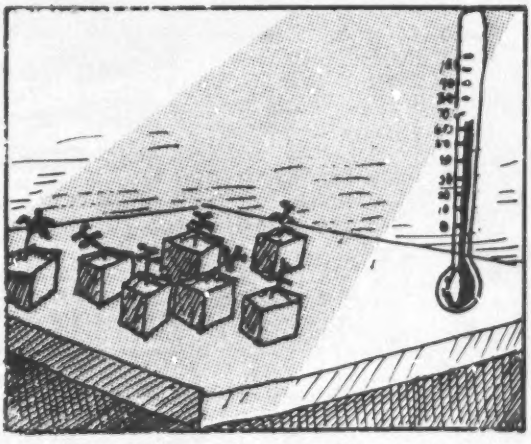
STEP 9 – Repeat until all seedlings with 4 – 6 leaves have been transplanted.



STEP 10 – Spread plastic on table or window sill to set transplant cups on.



STEP 11 – Wet soil with fine spray of water.



STEP 12 – Place seedlings in 50 – 60% shade, temperatures 60° – 70° F for two days and then place in sunlight.

Check Point

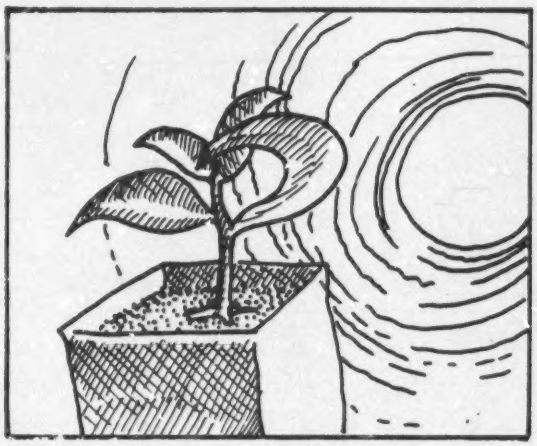
Before continuing, check to see that all seedlings with 4 – 6 leaves have been transplanted.

If all have been transplanted, continue to the next step.

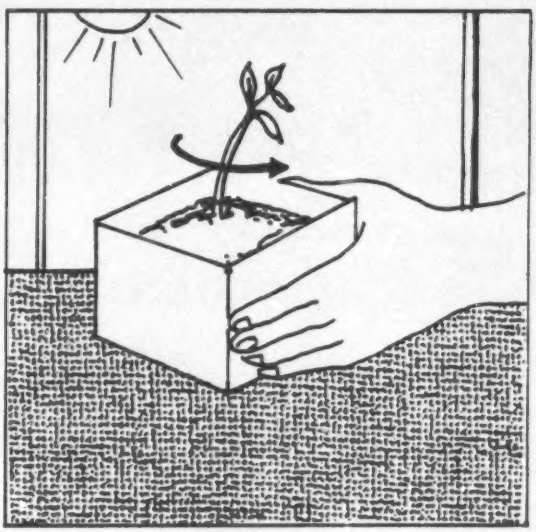
If some seedlings with 4 – 6 leaves remain, transplant according to directions.

Instructional Objective III

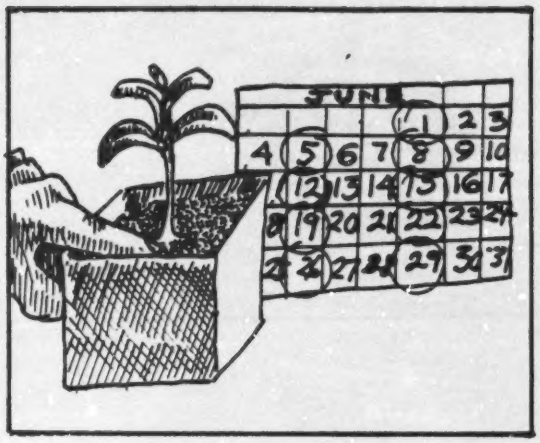
The student will care for plants until sold.



STEP 1 – Place the seedlings in the sunlight after they have recovered from the transplanting shock.



STEP 2 – Turn the plants daily to keep them growing straight.



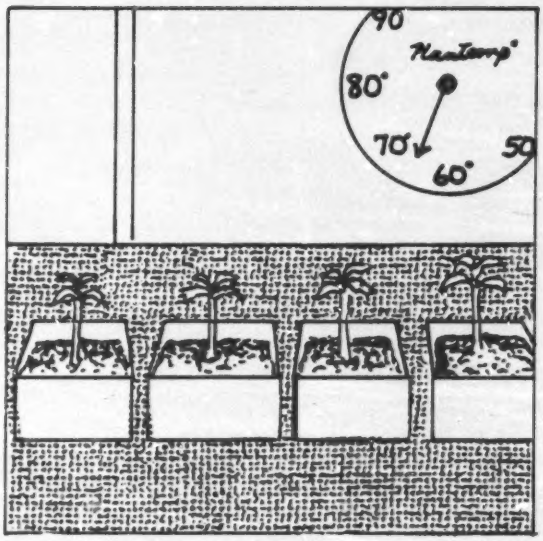
STEP 3 – Water each plant twice a week, careful not to overwater. Soil should remain slightly moist.

STEP 5 – Continue care of seedlings until they are sold.

Check Point

Check to see that all the plants have been watered properly.

If some plants were not watered, water and care for them following directions.



STEP 4 – Plants should be kept in a temperature range of 60° – 70° F.

HOTBED WORKER

INTRODUCTION

The hotbed worker plants the seed and provides care for the plants until they are transplanted. It is very important that the hotbed worker not neglect the assigned duties since germination is a crucial period during this activity.

GOALS

Upon completion of this activity, the student will have a better understanding of the type of activities performed by a hotbed worker.

DIRECTIONS

The student must follow the directions carefully, completing each step before continuing to the next step. The farmer can help solve any problem that arises.

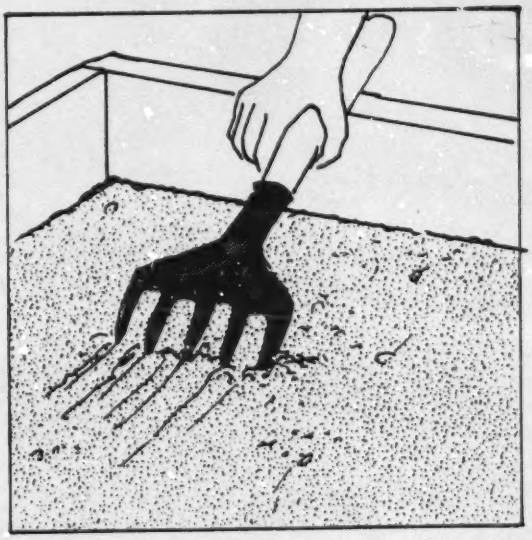
MATERIALS

Seeds, hand rake, plastic.

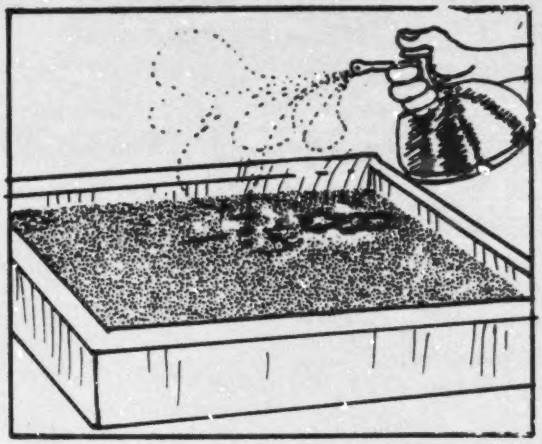
Instructional Objective 1

The student will plant the seeds in the prepared seed beds.

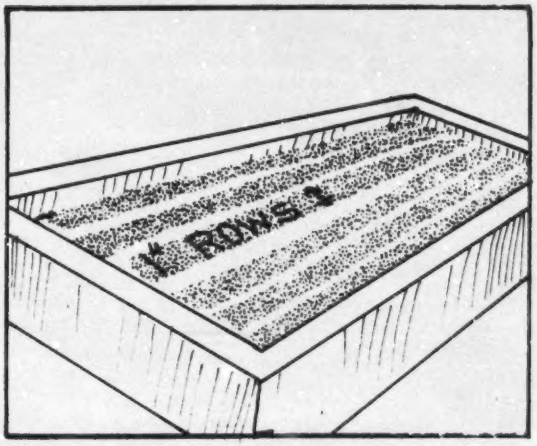
STEP 1 – Secure the prepared seed bed and materials.



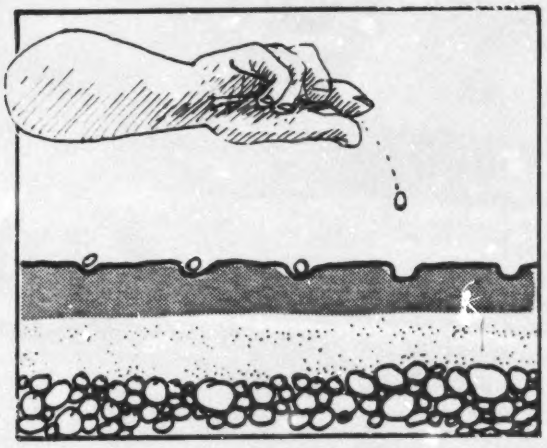
STEP 2 – Use the rake to smooth out the soil.



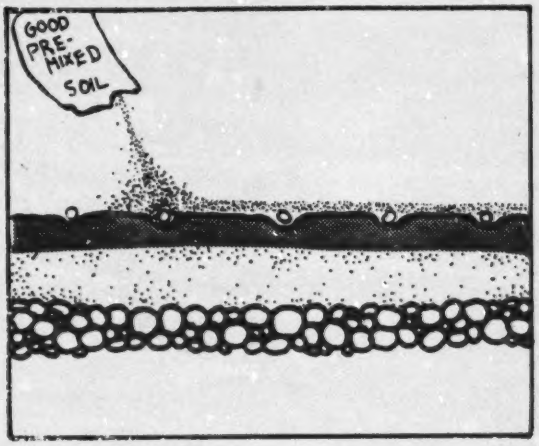
STEP 3 – Wet the soil mixture with a fine mist.



STEP 4 – Make rows in the soil at least 1" (2.54 cm) apart.



STEP 5 – Plant seeds in rows, at least 1" (2.54 cm) apart.



STEP 6 – Cover seeds with thin layer ¼ – ½" (0.635 - 1.27 cm) of premixed soil.

STEP 7 – Cover the "hot box" or seed bed with a layer of plastic.

Check Point

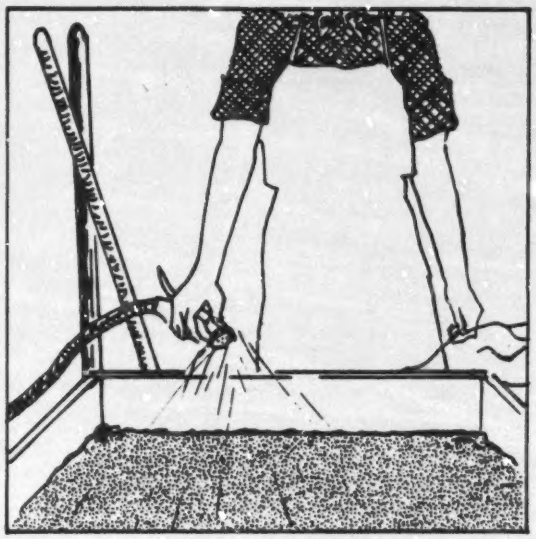
Before continuing, check to see that all of the seeds are covered.

If all of the seeds are covered, continue to the next step.

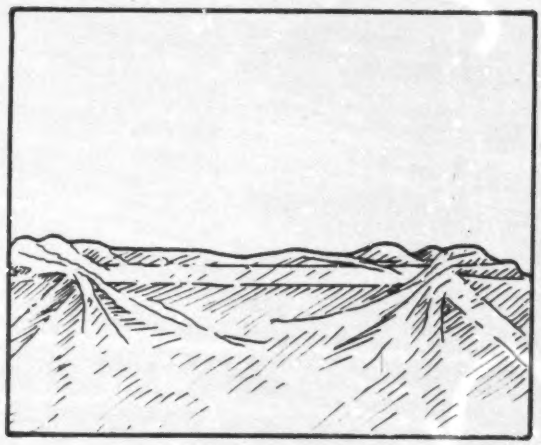
If some seeds are uncovered, cover them with soil following directions.

Instructional Objective II

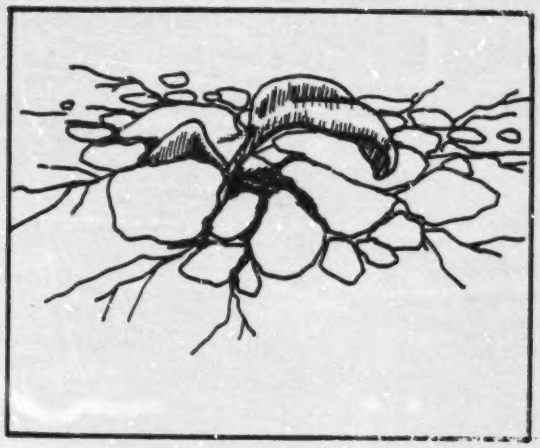
The student will care for and water the seeds in the hot bed and the plants when they come up.



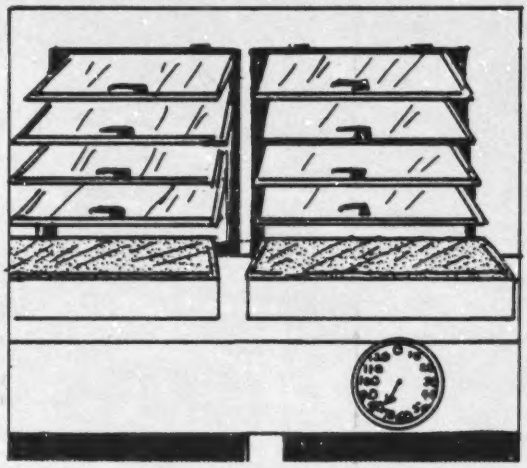
STEP 1 – After planting, wet the soil in the hot bed with a fine mist, keeping the soil moist.



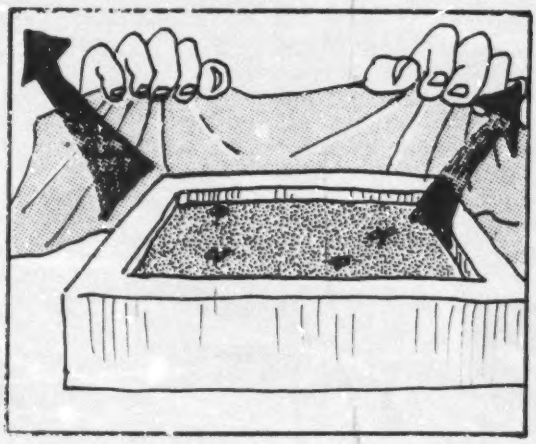
STEP 2 – Recover with the plastic.



STEP 3 – Water once a week until plants come up (14 to 18 days).



STEP 4 – Keep the hot bed in a warm room in a window where it can get sunlight. Temperatures of 70° – 80° F. are best.



STEP 5 – Uncover the hot bed when the plants start coming up.

STEP 6 – Water the plants twice a week.

Check Point

Check to see that soil is evenly moist.
If the hotbed has dry spots, water according to directions.

FARM HAND SALES

INTRODUCTION

The farm hand in charge of sales assists the farmer in selling the plants. The plants can be "sold" to the Farm Equipment and Supply Company or to individuals in the neighborhood or used as "pay" for the workers on the farm.

GOALS

Upon completion of this activity, the student will have a better understanding of some of the selling activities of farmers.

DIRECTIONS

The student must follow the directions carefully, completing each step before continuing to the next step. If any problem arises, ask the farmer for help.

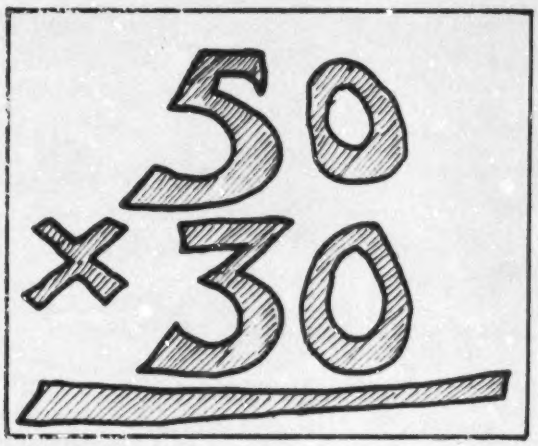
MATERIAL

Pencil, paper.

Instructional Objective 1

The student will set a reasonable price for the plants.

STEP 1 – Get the cost per plant figure from the inventory clerk.



STEP 2 – Multiply this number by 30% (.30) for the profit.

COST PER PLANT
×.30
=PROFIT MARGIN

PROFIT MARGIN
+COST PER PLANT
=SELLING PRICE

STEP 3 – Add the answer to the cost per plant number. This is the initial sale price.

Check Point

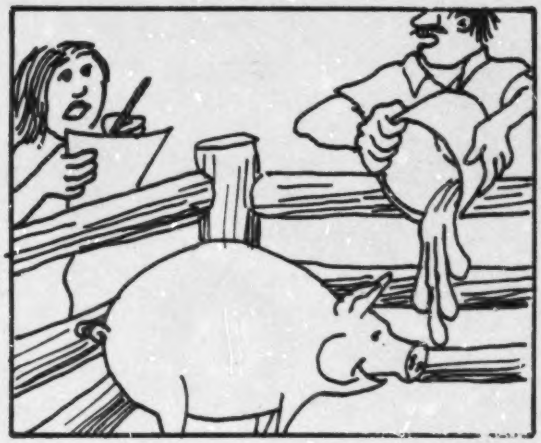
Before continuing, check with the farmer to see if the selling price is o.k.

If the price is approved, continue to the next phase.

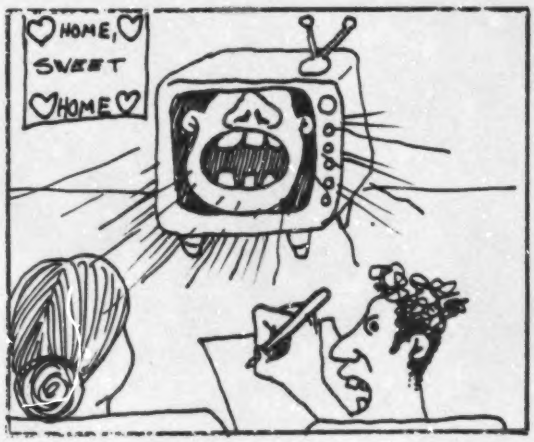
If the price is not approved, ask the farmer to help figure the profit percentage.

Instructional Objective II

The student will sell or take orders for the plants when they are ready for sale.

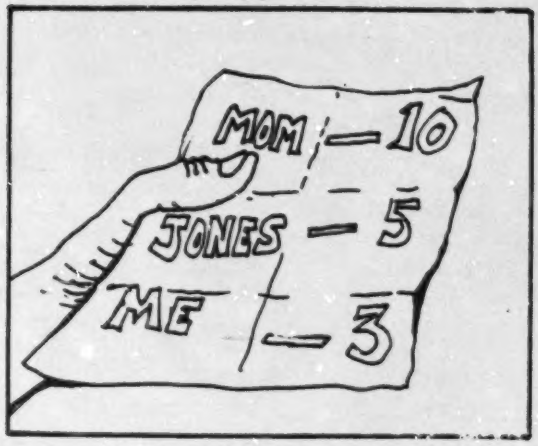


STEP 1 – Check with the farmer to see how many plants will be "sold". Some students may want plants for their work.



STEP 2 – Ask the students to check with their parents to see if anyone wants to buy any plants.

STEP 3 – Ask other teachers in the school if they want to buy any plants.



STEP 4 – Write each person's order on a sheet of paper.

STEP 5 – Multiply the number of plants ordered times the selling price.

STEP 6 – Collect the "money" when the plants are delivered.

STEP 7 – Turn the money in to the farmer.

Check Point

Check the amount of money collected and the number of plants sold to see if they agree.

If there is an error, determine the error and correct the mistake.

222.387-026 INVENTORY CLERK (clerical)

Compiles records of amount, kind, and value of merchandise, materials, or stock on hand in establishment or department of establishment: Counts stock, materials, or merchandise on hand and posts totals to inventory records. Compares inventories taken by other workers with office records or computes figures from sales, equipment, shipping, productions, purchase, or stock records to obtain current theoretical inventory. Verifies clerical computations against physical count of stock and adjusts errors in computation or count, or investigates and reports reasons for discrepancies. Compiles information on receipt or disbursement of goods and computes shortages. May list depleted items. May recommend survey of broken or unusable items. May operate typewriter, adding machine, or calculating machine. May be designated according to item inventoried as EQUIPMENT-INVENTORY CLERK (petrol, refin.) or type of inventory as INVENTORY CLERK, PERPETUAL (clerical); INVENTORY CLERK, PHYSICAL (clerical) or work location as INVENTORY CLERK, STOCKROOM (clerical).

272.357-014 SALES REPRESENTATIVE, FARM AND GARDEN EQUIPMENT AND SUPPLIES (whole. tr.)

Sells farm and garden machinery, equipment, and supplies, such as tractor, feed, fertilizer, seed, insecticide, and farm garden implements, performing duties as described under SALES REPRESENTATIVE (ret. tr.; whole tr.). May sell spare parts and service contracts for machinery and equipment.

402.663-010 FARMWORKER, VEGETABLE (agric.) I

Drives and operates farm machinery to plant, cultivate, and harvest vegetables, such as peas, lettuce, tomatoes, and lima beans: Attaches farm implements such as plow, planter, fertilizer applicator, and harvester, to tractor and drives tractor in fields to prepare soil and plant, fertilize and harvest crops. Thins, hoes, and weeds row crops, using hand implements. Irrigates land to provide sufficient moisture for crop growth, using irrigation method appropriate to crop or locality. May mix spray solutions and spray crops. May supervise seasonal workers and keep time records of workers. May use horse-drawn equipment to plant, cultivate, and harvest crops. May adjust and maintain farm machinery. May be identified with crop raised.

405.684-014 HORTICULTURAL WORKER (agric.) I

Plants, cultivates, and harvests horticultural specialties, such as flowers and shrubs, and performs related duties in environmentally-controlled structure applying knowledge of environmental systems. Ascertains growing schedules and deviations from established procedures from grower or manager. Sows seed and plants cuttings. Looks at and feels leaf texture, bloom development, and soil condition to determine nutrient and moisture requirements and to detect and identify germ and pest infestations. Sets fertilizer timing and metering system. Applies herbicides, fungicides, and pesticides to destroy undesirable growth and pests, using spray wand connected to solution tank. Reads and interprets sensing indicators and regulates humidity, ventilation, and carbon dioxide systems to control environmental conditions. Grafts scions to seedling stock. Pollinates, prunes, transplants, and pinches plants, and culls flowers, branches, fruit, and plants to insure development of marketable products. Harvests, packs, and stores crop, using techniques appropriate for individual horticultural specialty. May maintain and repair hydroponic and environmental control systems. May maintain and repair structures, using materials, such as corrugated fiberglass panels, lath, glass panes, and putty, and tools, such as hammer, saw, and putty knife. May be designated according to work location as GREENHOUSE WORKER (agric.), or according to horticultural specialty, as ORCHID WORKER (agric.).

405.687-014 HORTICULTURAL WORKER (agric.) II

Performs any combination of the following duties concerned with preparing soil and growth media, cultivating, and otherwise participating in horticultural activities under close supervision on acreage, in nursery, or in environmentally-controlled structure, such as

greenhouse and shed: Hauls and spreads topsoil, fertilizer, peat moss, and other materials to condition land. Digs, rakes, and screens soil and fills cold frames and hot beds to prepare them for planting. Fills growing tanks with water. Plants, sprays, weeds and waters plants, shrubs, and trees. Sows grass seed and plants plugs of sod and cuts, rolls, and stacks sod. Prepares scion and ties buds to assist worker budding roses. Traps and poisons pests, such as moles, gophers, and mice. Plants shrubs and plants in containers. Ties, bunches, wraps, and packs flowers, plants, shrubs, and trees to fill order. Moves containerized shrubs and trees, using wheelbarrow. Digs up shrubs and trees and wraps their roots with burlap. May be designated according to employing establishment as GRASS-FARM LABORER (agric.); GREENHOUSE LABORER (agric.); NURSERY LABORER (agric.); ROSE-FARM LABORER (agric.); or according to horticultural specialty as BEAN-SPROUT LABORER (agric.); MUSHROOM LABORER (agric.).